UP Squared 6000 Edge

Edge System
UPN-EDGE-EHL01

User's Manual 2nd Ed

Last Updated: September 26, 2022

Copyright Notice

Acknowledgement

Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● UPN-EDGE-EHL01 with heatsink (UP Squared 6000 Edge)	1
● Quick Start Guide	1
● 40Pin Phoenix Connector	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the product page at AAEON.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.

17. If any of the following situations arises, please the contact our service personnel:
    i. Damaged power cord or plug
    ii. Liquid intrusion to the device
    iii. Exposure to moisture
    iv. Device is not working as expected or in a manner as described in this manual
    v. The device is dropped or damaged
    vi. Any obvious signs of damage displayed on the device
18. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.

FCC Statement

This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.
Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur.
Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

产品中有毒有害物质或元素名称及含量

AAEON System QO4-381 Rev.A0

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及其电子组件	×	○	○	○	○	○
外部信号连接器及线材	×	○	○	○	○	○
外壳	○	○	○	○	○	○
中央处理器与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
液晶模块	×	○	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○
电池	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572标准规定的限量要求以下。

×：表示该有害物质的某一均质材料超出了GB/T 26572的限量要求，然而该部件仍符合欧盟指令2011/65/EU 的规范。

备注：

一、此产品所标示之环保使用期限，系指在一般正常使用状况下。

二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。

三、上述部件物质液晶模块、触控模块仅一体机产品适用。

China RoHS Requirement (EN)

Hazardous and Toxic Materials List

AAEON System QO4-381 Rev.A0

Component Name	Hazardous or Toxic Materials or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBBs)	Polybrominated diphenyl ethers (PBDEs)
PCB and Components	X	O	O	O	O	O
Wires & Connectors for Ext.Connections	X	O	O	O	O	O
Chassis	O	O	O	O	O	O
CPU & RAM	X	O	O	O	O	O
HDD Drive	X	O	O	O	O	O
LCD Module	X	O	O	O	O	O
Optical Drive	X	O	O	O	O	O
Touch Control Module	X	O	O	O	O	O
PSU	X	O	O	O	O	O
Battery	X	O	O	O	O	O

This form is prepared in compliance with the provisions of SJ/T 11364.

O: The level of toxic or hazardous materials present in this component and its parts is below the limit specified by GB/T 26572.

X: The level of toxic of hazardous materials present in the component exceed the limits specified by GB/T 26572, but is still in compliance with EU Directive 2011/65/EU (RoHS 2).

Notes:

1. The Environment Friendly Use Period indicated by labelling on this product is applicable only to use under normal conditions.
2. Individual components including the CPU, RAM/memory, HDD, optical drive, and PSU are optional.
3. LCD Module and Touch Control Module only applies to certain products which feature these components.

Table of Contents

Chapter 1

Product Specifications

1.1 Specifications

System	
CPU	Intel® Atom® X6413E / X6425RE, Celeron® N6210 (no PSE), Pentium® J6426 Processor SoC
Memory	Onboard DDR4, Max 8GB Single Channel: 2 GB Dual Channel: 4 GB, 8 GB
Graphics	Intel® UHD Graphics
Storage	Onboard eMMC 32G/64G Optional with M.2 2280 M-key x 1, SATA3 x 1
Ethernet	GbE x 1, 2.5GbE x 1 Atom: Intel® i210-IT, i225-IT PC Client: Intel® i211-AT, i225-V
WIFI/BT	Optional with M.2 2230 E-key x 1
Audio	Line out x 1 Mic in x 1
USB	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 (Limited to Atom series)
Expansion Slot	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 PCIe Gen3.0x2 M-key x 1 SATA3 x 1 M.2 3052 B-key x 1 Micro SIM slot x 1 TPM 2.0 (Limited to Atom series)

I/O Placements

Power	DC-in Jack x 1, Power Button x 1
USB	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 (Limited to Atom series)
Display Port	HDMI 2.0b x 1 DP 1.2 x 1
Ethernet	RJ45 x 2
COM	RS232/RS422 x 1 (Limited to Atom series)

Environment

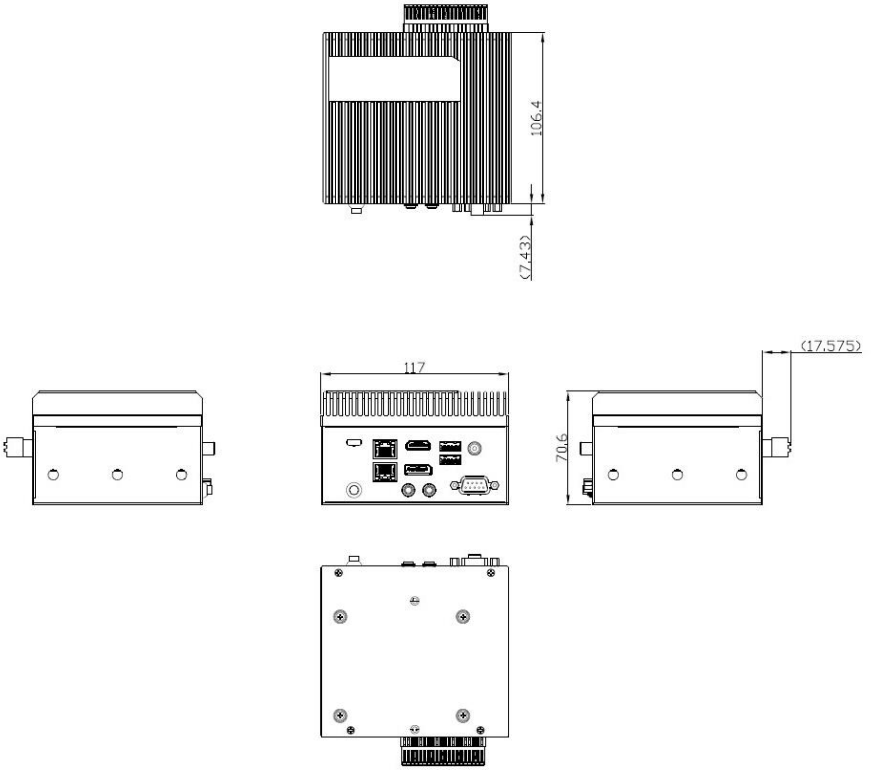
Power	12V DC-in (Lockable plug)
Form Factor	4.6" x 4.2" x 2.8" (11.7 x 10.6 x 7 cm)
Gross Weight	2.31lb (1.05Kg)
Operating Temperature	With Heatsink: 32°F ~ 140°F (0°C ~ 60°) with air flow 0.5m/s
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE/FCC Class A, RoHS Compliant, REACH
OS Support	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 20.04 LTS, Yocto 3.1

Chapter 2

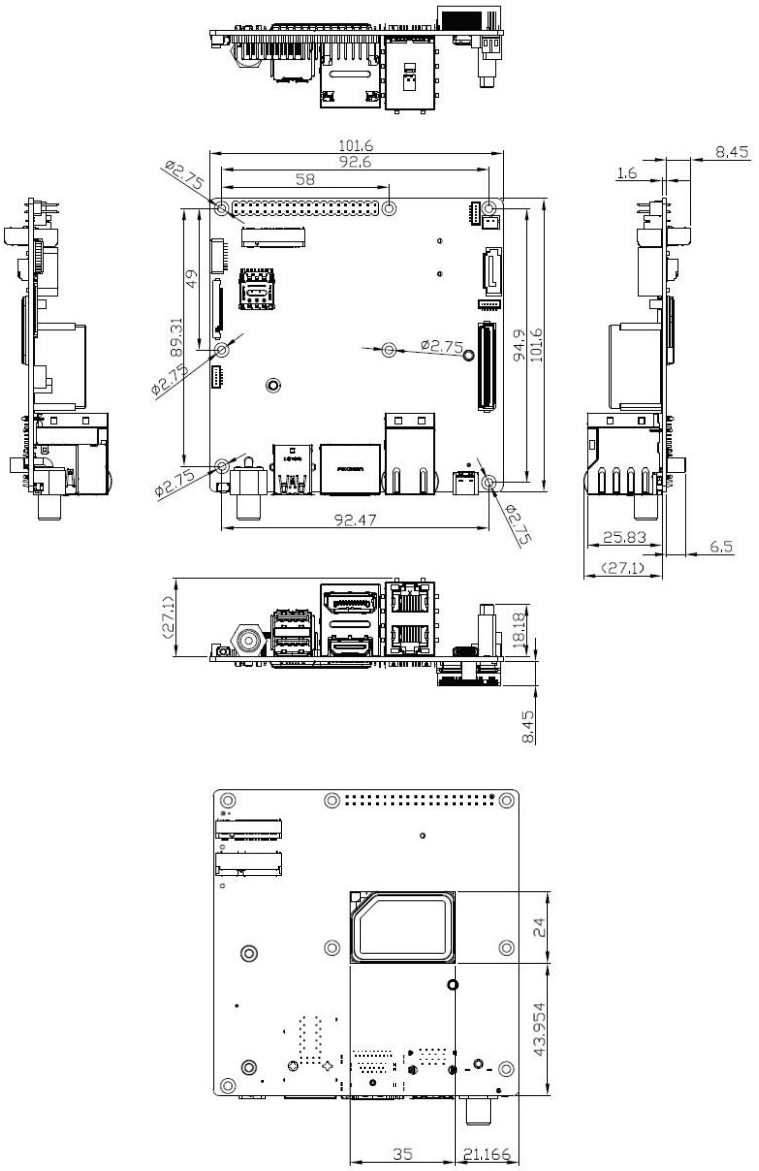
Hardware Information

2.1 Dimensions

System



Board


101.6
92.6
58
Ø2.75
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89.31
94.9
101.6
92.47
8.45
1.6
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6.5
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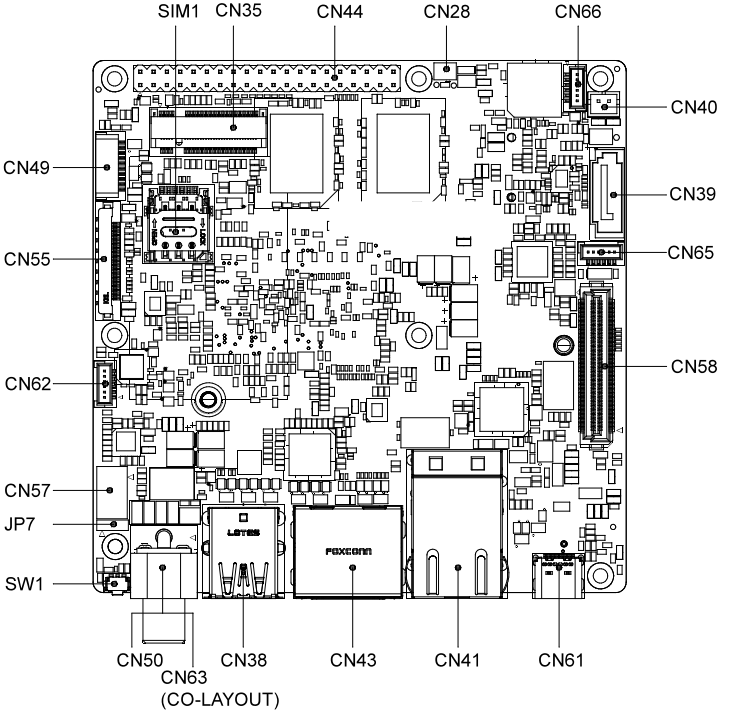
18.18
24
43.954
35
21.166

2.2 Jumpers and Connectors

Top:



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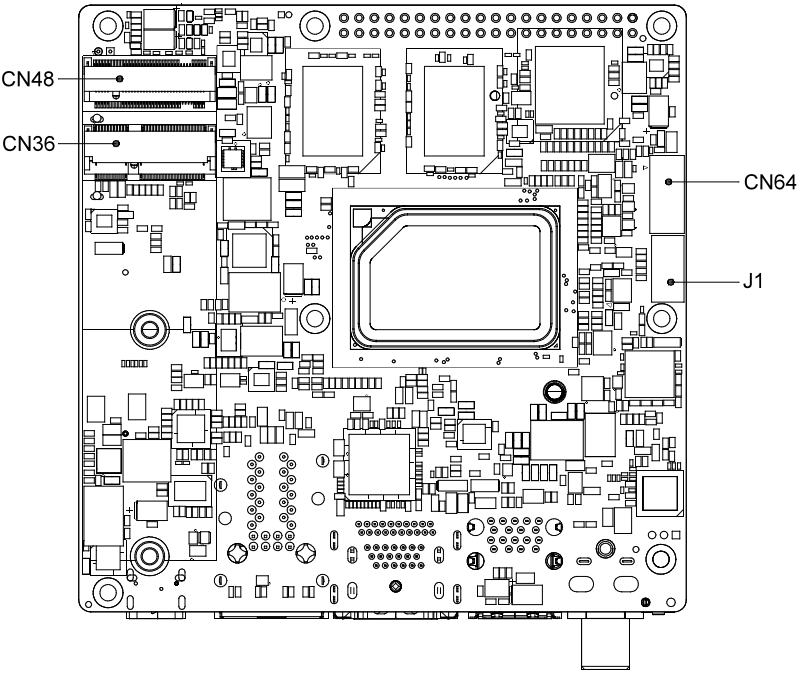
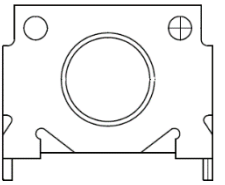


2.3 List of Jumpers and Connectors

Please refer to the table below for all of the board's jumpers that you can configure for your application

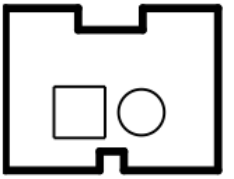
Label	Function
SW1	PWR button
CN28	RTC
CN35	M.2 3052 B-Key Slot
CN36	M.2 2230 E-Key Slot
CN38	USB Type A DUAL PORT
CN39	SATA CONN
CN40	SATA POWER
CN41	LAN DUAL PORT
CN43	HDMI/DP
CN44	HAT 40
CN48	M.2 2280 M-Key Slot
CN49	USB 2.0/UART 1x10P Wafer
CN50	DC JACK
CN55	eDP
CN57	BIOS update
CN58	Docking
CN61	TYPE C
CN62	RS232 / 422, 1x6P Wafer
CN64	SWD
CN65	Front Panel, 1x6P Wafer
CN66	AUDIO Wafer
J1	FAN
JP7	AT/ATX mode

2.3.1 PWR Button (SW1)



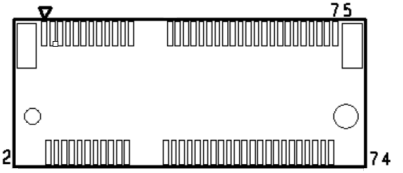
Switch Position	Function
SW1 1	(default)
SW1 0	Power ON

2.3.2 RTC (CN28)



Pin	Signal
1	RTC_VCC
2	GND

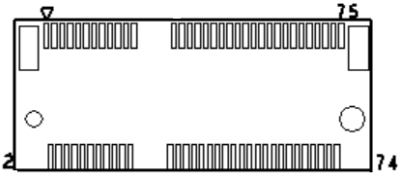
2.3.3 M.2 3052 B-Key Slot (CN35)



Pin	Signal	Pin	Signal	Pin	Signal
1	NC	2	+3.3V	3	GND
4	+3.3V	5	GND	6	FULL_CARD_POWER_OFF#
7	USB2_D+	8	W_DISABLE#1	9	USB2_D-
10	NC	11	GND	12	NC
13	NC	14	NC	15	NC
16	NC	17	NC	18	NC
19	NC	20	NC	21	NC
22	NC	23	NC	24	NC
25	NC	26	NC	27	GND
28	NC	29	USB3_RX-	30	UIM_RST
31	USB3_RX+	32	UIM_CLK	33	GND
34	UIM_DAT	35	USB3_PX-	36	UIM_PWR
37	USB3_PX+	38	NC	39	GND
40	NC	41	PCIE10_RXN	42	NC
43	PCIE_RXP	44	NC	45	GND
46	NC	47	PCIE_TXN	48	NC
49	PCIE10_TXP	50	PLT_RST#(3.3V)	51	GND
52	PCIE_CLKREQ#	53	PCIE_CLKN	54	PCIE_WAKE#
55	PCIE_CLKP	56	NC	57	GND

Pin	Signal	Pin	Signal	Pin	Signal
58	NC	59	NC	60	NC
61	NC	62	NC	63	NC
64	NC	65	NC	66	NC
67	PLT_RST#(1.8V)	68	NC	69	NC
70	+3.3V	71	GND	72	+3.3V
73	GND	74	+3.3V	75	GND

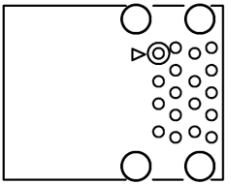
2.3.4 M.2 2230 E-Key Slot (CN36)



Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	+3.3V	3	USB2_D+
4	+3.3V	5	USB2_D-	6	NC
7	GND	8	NC	9	NC
10	NC	11	NC	12	NC
13	GND	14	NC	15	NC
16	NC	17	NC	18	GND
19	GND	20	NC	21	NC
22	CNV_BRI_RSP	23	NC	24	NC
25	NC	26	NC	27	NC
28	NC	29	NC	30	NC
31	NC	32	CNV_RGI_DT	33	GND
34	CNV_RGI_RSP	35	PCIE_TXP	36	CNV_BRI_DT

Pin	Signal	Pin	Signal	Pin	Signal
37	PCIE_TXN	38	NC	39	GND
40	NC	41	PCIE_RXP	42	NC
43	PCIE_RXN	44	NC	45	GND
46	NC	47	PCIE_CLKP	48	NC
49	PCIE_CLKN	50	SUS_CLK	51	GND
52	WIFI_RST#	53	PCIE_CLKREQ#	54	BT_EN
55	PCIE_WAKE#	56	WIFI_EN	57	GND
58	NC	59	NC	60	NC
61	NC	62	NC	63	GND
64	NC	65	NC	66	NC
67	NC	68	NC	69	GND
70	NC	71	NC	72	+3.3V
73	NC	74	+3.3V	75	GND

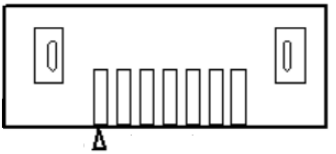
2.3.5 USB Type A DUAL PORT (CN38)



Pin	Signal	Pin	Signal	Pin	Signal
1	+5V	2	USB2_D1-	3	USB2_D1+
4	GND	5	USB3_RX1-	6	USB3_RX1+
7	GND	8	USB3_TX1-	9	USB3_TX1+
10	+5V	11	USB2_D2-	12	USB2_D2+
13	GND	14	USB3_RX2-	15	USB3_RX2+

Pin	Signal	Pin	Signal	Pin	Signal
16	GND	17	USB3_TX2-	18	USB3_TX2+

2.3.6 SATA CONN (CN39)

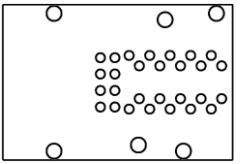


Pin	Signal	Pin	Signal
1	GND	2	SATA_TXP0
3	SATA_TXN0	4	GND
5	SATA_RXN0	6	SATA_RXP0
7	GND		

2.3.7 SATA POWER (CN40)

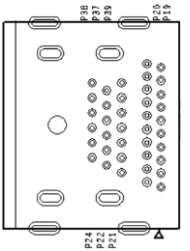
Pin	Signal	Pin	Signal
1	+V5S	2	GND

2.3.8 LAN DUAL PORT (CN41)



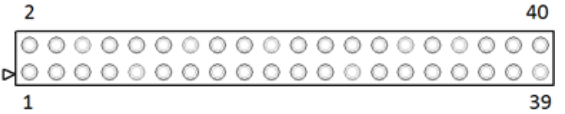
Pin	Signal	Pin	Signal	Pin	Signal
R1A	LAN1_MDI0+	R2A	LAN1_MDI0-	R3A	LAN1_MDI1+
R4A	LAN1_MDI1-	R5A	LAN1_MDI2+	R6A	LAN1_MDI2-
R7A	LAN1_MDI3+	R8A	LAN1_MDI3-	R9A	GND
R10A	GND	L1A	LAN1_ACTLED-	L2A	LAN1_ACTLED+
L3A	LAN1_LINK1000#	L4A	LAN1_LINK100#	R1B	LAN2_MDI0+
R2B	LAN2_MDI0-	R3B	LAN2_MDI1+	R4B	LAN2_MDI1-
R5B	LAN2_MDI2+	R6B	LAN2_MDI2-	R7B	LAN2_MDI3+
R8B	LAN2_MDI3-	R9B	GND	R10B	GND
L1B	LAN2_ACTLED-	L2B	LAN2_ACTLED+	L3B	LAN2_LINK1000#
L4B	LAN2_LINK100#				

2.3.9 HDMI/ DP (CN43)



Pin	Signal	Pin	Signal	Pin	Signal
P1	DP_TXP0	P2	GND	P3	DP_TXN0
P4	DP_TXP1	P5	GND	P6	DP_TXN1
P7	DP_TXP2	P8	GND	P9	DP_TXN2
P10	DP_CLK+	P11	GND	P12	DP_CLK-
P13	CONFIG1	P14	CONFIG2	P15	DP_AUX_P
P16	GND	P17	DP_AUX_N	P18	DP_HPD
P19	GND	P20	3.3V	P21	HDMI_TXP0
P22	GND	P23	HDMI_TXN0	P24	HDMI_TXP1
P25	GND	P26	HDMI_TXN1	P27	HDMI_TXP2
P28	GND	P29	HDMI_TXN2	P30	HDMI_CLK+
P31	GND	P32	HDMI_CLK-	P33	HDMI_CEC
P34	NC	P35	DDC_CLK	P36	DDC_DATA
P37	GND	P38	5V	P39	HDMI_HPD

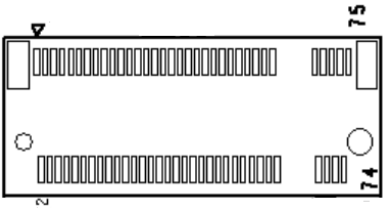
2.3.10 HAT40 (CN44)



Pin	Signal	Pin	Signal
1	+3.3V	2	+5V
3	GP_H06/SIO_I2C3_SDA	4	+5V
5	GP_H07/SIO_I2C3_SCL	6	GND
7	GP_F07/PSE_I2S1_SCLK	8	GP_C13_USUART0_TX
9	GND	10	GP_C12_HSUART0_RX
11	GP_C14_HSUART0_RS232_RTS_RS485_DE	12	HAT_I2S2_CLK

Pin	Signal	Pin	Signal
13	GP_H19_TGPIO0	14	GND
15	GP_B14_TGPIO1	16	GP_E23/PSE_PWM15/PSE_TGPIO19
17	+3.3V	18	GP_E22/PSE_PWM14/PSE_TGPIO18
19	GP_B22/SIO_SPI1_MOSI	20	GND
21	GP_B21/SIO_SPI1_MISO	22	GP_B11_PSE_TGPIO06
23	GP_B20/SIO_SPI1_CLK	24	GP_B19/SIO_SPI1_CS0_N
25	GND	26	GP_B23/SIO_SPI1_CS1_N
27	GP_B09_I2C5_SDA	28	GP_B10_I2C5_SCL
29	GP_F18/PSE_I2S1_TXD	30	GND
31	GP_F19/PSE_I2S1_RXD	32	GP_C05
33	GP_D04/PSE_PWM02	34	GND
35	HAT_I2S2_FRM	36	GP_C15_HSUART0_RS232_CTS
37	GP_F10/PSE_I2S1_SFRM	38	HAT_I2S2_RX
39	GND	40	HAT_I2S2_TX

2.3.11 M.2 2280 M-Key Slot (CN48)



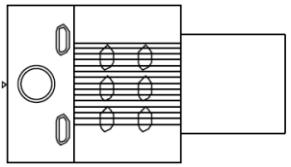
Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	+3.3V	3	NC
4	+3.3V	5	NC	6	NC
7	NC	8	NC	9	GND

Pin	Signal	Pin	Signal	Pin	Signal
10	NC	11	NC	12	+3.3V
13	NC	14	+3.3V	15	GND
16	+3.3V	17	NC	18	+3.3V
19	NC	20	NC	21	GND
22	NC	23	NC	24	NC
25	NC	26	NC	27	GND
28	NC	29	NC	30	NC
31	NC	32	NC	33	GND
34	NC	35	NC	36	NC
37	NC	38	SSD_DEV_SLP	39	GND
40	SMB_CLK_1V8	41	PCIE_RXN	42	SMB_DATA_1V8
43	PCIE_RXP	44	NC	45	GND
46	NC	47	PCIE_TXN	48	NC
49	PCIE_TXP	50	PLT_RST#	51	GND
52	PCIE_CLKREQ#	53	PCIE_CLKN	54	PCIE_WAKE#
55	PCIE_CLKP	56	NC	57	GND
58	NC	59	NC	60	NC
61	NC	62	NC	63	NC
64	NC	65	NC	66	NC
67	NC	68	NC	69	NC
70	+3.3V	71	GND	72	+3.3V
73	GND	74	+3.3V	75	GND

2.3.12 USB2.0/ UART 1x10P Wafer (CN49)

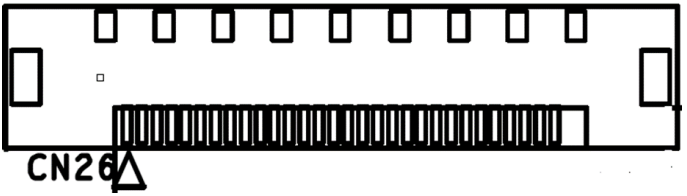
Pin	Signal	Pin	Signal	Pin	Signal
1	+5V	2	USB2_D5-	3	USB2_D5+
4	GND	5	+5V	6	USB2_D6-
7	USB2_D6+	8	GND	9	UART_RX
10	UART_TX				

2.3.13 DC Jack (CN50)



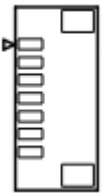
Pin	Signal	Pin	Signal	Pin	Signal
1	DC_IN	2	GND	3	GND

2.3.14 eDP (CN55)



Pin	Signal	Pin	Signal
1	+VDD_3V3	2	+VDD_3V3
3	GND	4	GND
5	EDP_TXN2	6	EDP_TXP2
7	GND	8	EDP_TXN1
9	EDP_TXP1	10	GND
11	EDP_TXN0	12	EDP_TXP0
13	GND	14	EDP_TXN3
15	EDP_TXP3	16	GND
17	EDP_AUXN	18	EDP_AUXP
19	GND	20	BKLT_CTRL
21	NC	22	BKLT_EN
23	EDP_HPD	24	GND
25	GND	26	GND
27	+12V	28	+12V
29	+12V	30	+12V

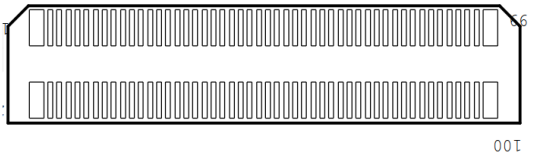
2.3.15 BIOS UPDATE (CN57)



Pin	Signal	Pin	Signal
1	SPI_MISO	2	GND
3	SPI_CLK	4	+VCC_SPI

Pin	Signal	Pin	Signal
5	SPI_MOSI	6	SPI_CS0#
7	NC		

2.3.16 DOCKING (CN58)

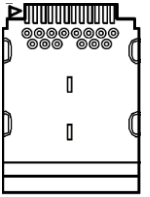


Pin	Signal	Pin	Signal	Pin	Signal
1	VCC_12V	2	VCC_12V	3	VCC_12V
4	VCC_12V	5	GND	6	VCC_12V
7	USB2_P9_DP	8	VCC_12V	9	USB2_P9_DN
10	GND	11	GND	12	GP_E15/PSE_CAN0_TX
13	GP_H07/SIO_I2C3_SCL	14	GP_E16/PSE_CAN0_RX	15	GP_H06/SIO_I2C3_SDA
16	GND	17	GND	18	GP_E20/CAN1_TX
19	GP_D00/PSE_QEPA0	20	GP_E21/CAN1_RX	21	GP_D13/PSE_QEPA1
22	GND	23	GP_T00/PSE_QEPA2	24	GP_D15/PSE_PWM03
25	GP_U07/PSE_QEPA3	26	GP_D17/PSE_PWM04	27	GP_D01/PSE_QEPB0
28	GP_D18/PSE_PWM05	29	GP_D14/PSE_QEPB1	30	GP_D03/PSE_PWM06
31	GP_T01/PSE_QEPB2	32	GND	33	GP_U11/PSE_QEPB3

Pin	Signal	Pin	Signal	Pin	Signal
34	SIO_SPI_1_CLK	35	GP_D02/PSE_QEPI0	36	SIO_SPI_1_TXD
37	GP_D16/PSE_QEPI1	38	SIO_SPI_1_RXD	39	GP_T02/PSE_QEPI2
40	SIO_SPI_1_FS1	41	GP_U19/PSE_QEPI3	42	GND
43	GP_H13_USUART1_TX	44	GND	45	GP_H21_HSUART1_RS232_RTS_R
46	ENET_A_RST	47	GP_H15_HSUART1_RS232_CTS	48	ENET_A_INT
49	GP_H12_HSUART1_RX	50	RGMII_A_SMA_MDC	51	GP_H22_HSUART1_RS485_RE_N
52	RGMII_A_SMA_MDIO	53	GP_H23_HSUART1_RS485_RS232	54	GBE0_RGMII_R_TXCLK
55	GND	56	GBE0_RGMII_R_TXCTL	57	ENET_B_RST
58	GBE0_RGMII_R_TXD0	59	ENET_B_INT	60	GBE0_RGMII_R_TXD1
61	RGMII_B_SMA_MDC	62	GBE0_RGMII_R_TXD2	63	RGMII_B_SMA_MDIO
64	GBE0_RGMII_R_TXD3	65	GBE1_RGMII_R_TXCLK	66	GND
67	GBE1_RGMII_R_TXCTL	68	GBE0_RGMII_RXCLK	69	GBE1_RGMII_R_TXD0
70	GBE0_RGMII_RXCTL	71	GBE1_RGMII_R_TXD1	72	GBE0_RGMII_RXD0
73	GBE1_RGMII_R_TXD2	74	GBE0_RGMII_RXD1	75	GBE1_RGMII_R_TXD3
76	GBE0_RGMII_RXD2	77	GND	78	GBE0_RGMII_RXD3
79	GBE1_RGMII_RXCLK	80	GP_T07_PSE_GBE0_PPS_PSE_TGP	81	GBE1_RGMII_RXCTL
82	GP_T06_PSE_GBE0_AUXTS_USB2	83	GBE1_RGMII_RXD0	84	GP_H03_PSE_GBE1
85	GBE1_RGMII_RXD1	86	GP_H02	87	GBE1_RGMII_RXD2

Pin	Signal	Pin	Signal	Pin	Signal
88	GND	89	GBE1_RGMII_RXD3	90	PCIE_P9_SATA_P1_TXP
91	GND	92	PCIE_P9_SATA_P1_TXN	93	SLP_S3#
94	GND	95	BUF_PLT_RST#	96	PCIE_P9_SATA_P1_RXP
97	BUF_PLT_RST#	98	PCIE_P9_SATA_P1_RXN	99	GND
100	GND				

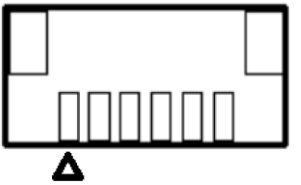
2.3.17 USB3.1 CONNECTOR (CN61)



Pin	Signal	Pin	Signal
A1	GND	B1	GND
A2	TX_P1_P	B2	TX_P2_P
A3	TX_P1_N	B3	TX_P2_N
A4	USB_VBUS	B4	USB_VBUS
A5	TYPEC_CC1	B5	TYPEC_CC2
A6	USB2_P1_DP	B6	USB2_P2_DP
A7	USB2_P1_DN	B7	USB2_P2_DN
A8	NC	B8	NC
A9	USB_VBUS	B9	USB_VBUS
A10	RX_ P1 _N	B10	RX_P2_N
A11	RX_ P1_ P	B11	RX_P2_P

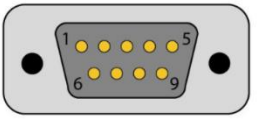
Pin	Signal	Pin	Signal
A12	GND	B12	GND

2.3.18 RS232/ 422 (CN62)



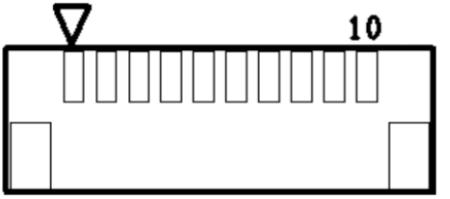
Pin	Signal	Pin	Signal
1	CTS/RX-	2	RTS/TX+
3	GND	4	TX/TX-
5	RX/RX+	6	+5V

Cable



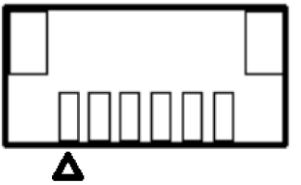
Pin	Signal	Pin	Signal
1	NC	2	RX/RS422TX-
3	TX/RS422TX+	4	NC
5	GND	6	NC
7	RTS/RS422RX+	8	CTS/RS422RX-
9	NC		

2.3.19 SWD (CN64)



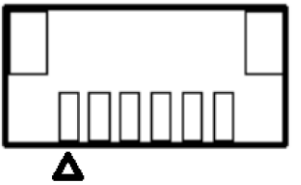
Pin	Signal	Pin	Signal
1	DBRESET	2	PSE_SWDIO
3	PSE_SWCLK	4	PSE_TRACESWO
5	PSE_TRACECLK	6	PSE_TRACEDATA_0
7	PSE_TRACEDATA_1	8	PSE_TRACEDATA_2
9	PSE_TRACEDATA_3	10	GND

2.3.20 Front Panel (CN65)



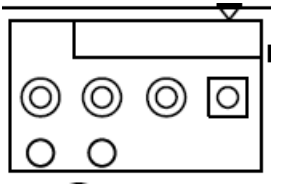
Pin	Signal	Pin	Signal
1	GND	2	RESET
3	GND	4	POWER S/W
5	GND	6	+5V

2.3.21 AUDIO (CN66)



Pin	Signal	Pin	Signal
1	LOUT_R	2	LOUT_L
3	GND	4	+V5S_AUD
5	AUDIO-JD	6	MIC_IN_JD

2.3.22 FAN (J1)



Pin	Signal	Pin	Signal
1	FAN_TAC	2	FAN_CTL
3	GND	4	12V

2.3.23 AT/ATX mode (JP7)

Pin	Signal	Pin	Signal
1	ATX_MODE	2	PWRBTN
3	AT_MODE		

2.4 Connector Index

Label	Function	Connector Type
SW1	PWR button	(TF)Push Button Switch.3P.12VDC.50mA.500mohm.Black.SMD.HCH.PTS-099
CN28	RTC	(TF)WAFER BOX.2P.180D(M).DIP.1.25mm.PINREX.712-71-02TW01
CN35	M.2 3052 B-Key Slot	(TF)M.2 3052 B-Key Slot.75P.90D(F).SMD.H=8.5mm conn.FOXCONN.AS0BC21-S85BB-7H
CN36	M.2 2230 E-Key Slot	(TF)M.2 2230 E-Key Slot.75P.90D(F).SMD.Pitch 0.5mm.H=6.7mm.BLACK.FOXCONN.AS0BC21-S67BE-LH
CN38	USB Type A DUAL PORT	(TF)USB3.0 CONNECTOR.DUAL PORT.18P.90D(F).DIP.LOTES.ABA-USB-254-K01
CN39	SATA CONN	(TF)SATA CONNECTOR.7P.180D(M).SMT.TechBest.007-01-00757
CN40	SATA POWER	(TF)WAFER.4P.180D.(M).2.5mm.W/LOCK POWER DIP.何迪.P201-04
CN41	LAN DUAL PORT	(TF)RJ45.28P.90D(F).W/LED(R-Y;L-G/O).W/1000 Base Transformer.DAUL PORT.DIP.Speed Tech.RMG42A-KGW3-FE0-0R
CN43	HDMI/DP	(TF)HDMI/DP combo Port conn..39P.90D(F).DIP.FOXCONN.3VD11203-HHJ0-4H
CN44	HAT 40	(TF)PIN HEADER.20*2P.180D(M).DIP.2.54mm.JVE.21N22564-40S20B-01G-5.5/3.3
CN48	M.2 2280 M-Key Slot	(TF) M.2 2280 M-Key Slot.75P.90D(F).Standard type.BLACK.SMD.H=8.5mm conn.FOXCONN.2E0BC21-S85BM-7H
CN49	USB 2.0/UART 1x10P Wafer	(TF)Wafer Box.10P.90D(M).SMD.1.0mm.PINREX.710-74-10TWR6
CN50	DC JACK	(TF)DC Power Jack.3P.90D(F).DIP.COXOC.416AEDCD020105B
CN55	eDP	(TF)Board-Wire Conn.30P.90D(F).0.5mm.SMD.KEL.SSL00-30L3
CN57	BIOS update	(TF)WAFER BOX.7P.90D(M).SMD.1.0mm.W/Cap.PINREX.710-74-07TWR6
CN58	Docking	(TF)BOARD-BOARD CONN..SMD.100P.180D.FEMALE.Pitch=0.5mm.H=18.18mm.Floating Connector for High-Speed Transmission.KEL

Label	Function	Connector Type
		CORPORATION.DT11-100S-20-T
CN61	TYPE C	(TF)USB Type C Connector.24P.90D(F).W/30u-Au.SMD.AMCO.211-202451-085
CN62	RS232 / 422 1x6P Wafer	(TF)Wafer Box.6P.180D.(M).SMD.1.0mm.w/ CAP.CATCH.1204-700-06SMR
CN63	DC terminal block	(TF)TERMINAL.2P*1.90D(M).DIP.Pitch=5.0mm.BLOCK.w/ L(+)&R(-) MARK.DINKLE.DT-126VP-S2016002P
CN64	SWD	(TF)Wafer Box.10P.90D(M).SMD.1.0mm.PINREX.710-74-10TWR6
CN65	Front Panel 1x6P Wafer	(TF)Wafer Box.6P.180D.(M).SMD.1.0mm.w/ CAP.CATCH.1204-700-06SMR
CN66	AUDIO Wafer	(TF)Wafer Box.6P.180D.(M).SMD.1.0mm.w/ CAP.CATCH.1204-700-06SMR
J1	FAN	(TF)WAFER BOX.4P.180D(M).SMD.1.25mm.W/CAP.JVE.24W1251-04MS1-11T-F-C
JP7	AT/ATX mode	(TF)PIN HEADER.3*1P.180D(M).DIP.2.0mm.PINREX.220-96-03GB01

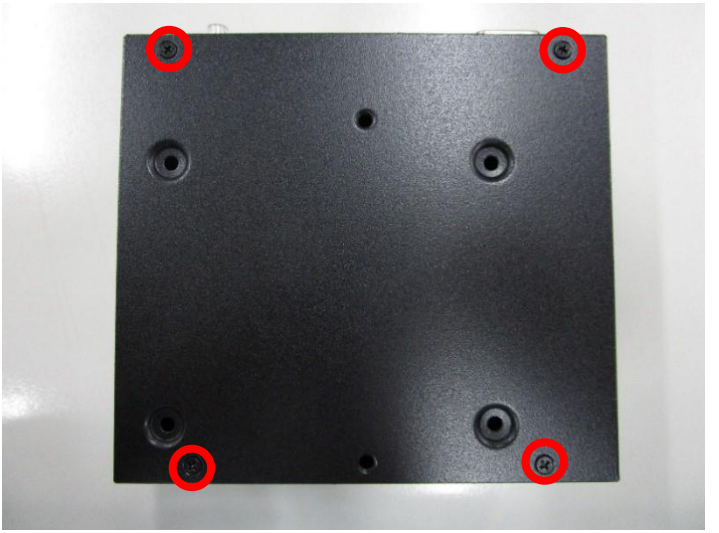
2.5 Hardware Installation

This section details the steps needed to install various hardware components for the UP Squared 6000 Edge. It is recommended that you read through each step before beginning installation and to make sure you have all necessary tools and components.

2.5.1 Wi-Fi Module (M.2 2230 E-Key Slot) Installation

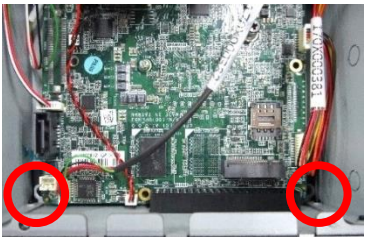
For this process you will need a Phillips head screwdriver.

Step 1: Remove the four outermost screws on the bottom plate.

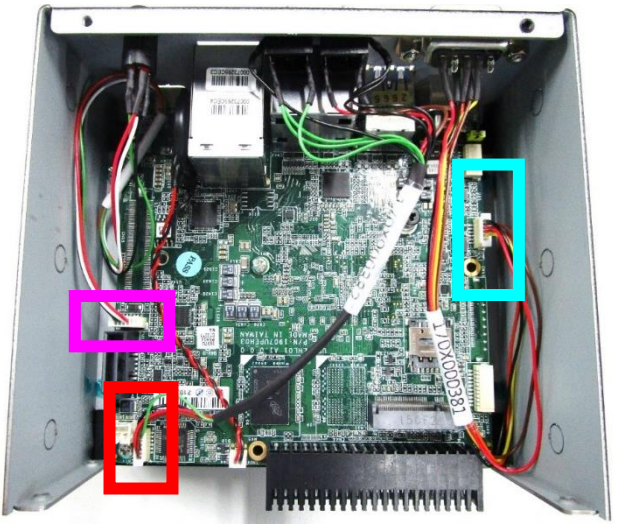


Step 2: Remove outer nut and washer on Power Jack.

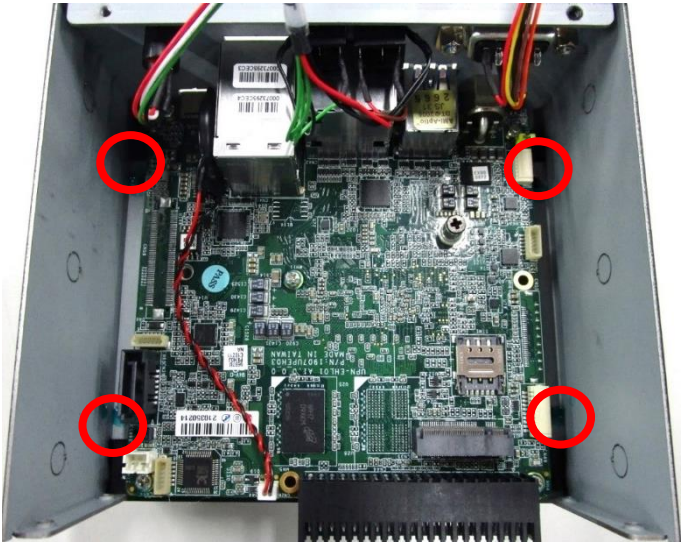
Step 3: Remove the six rear cover screws.



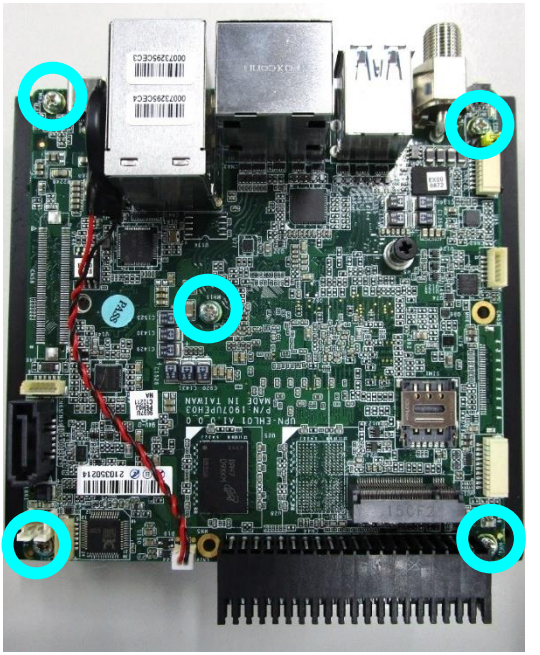
Step 4: Remove all cables from wafers.

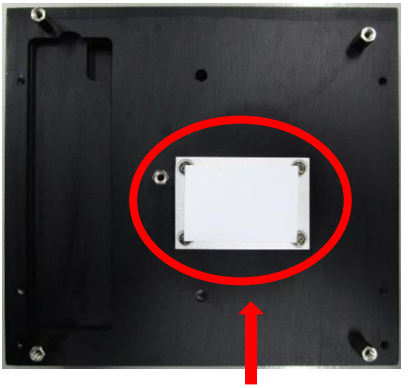


Step 5: Remove the four front panel screws.



Step 6: Remove the 5 PCB screws and pull up the board. If the PAD is damaged, it needs to be replaced with new one.

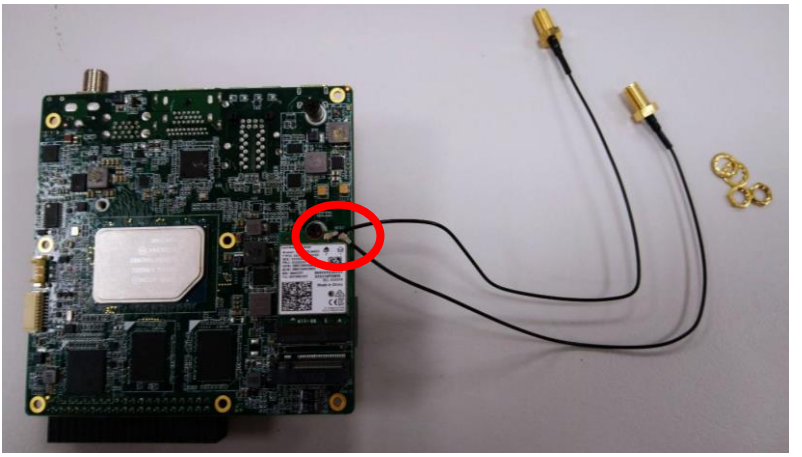




Ensure thermal pad is complete.

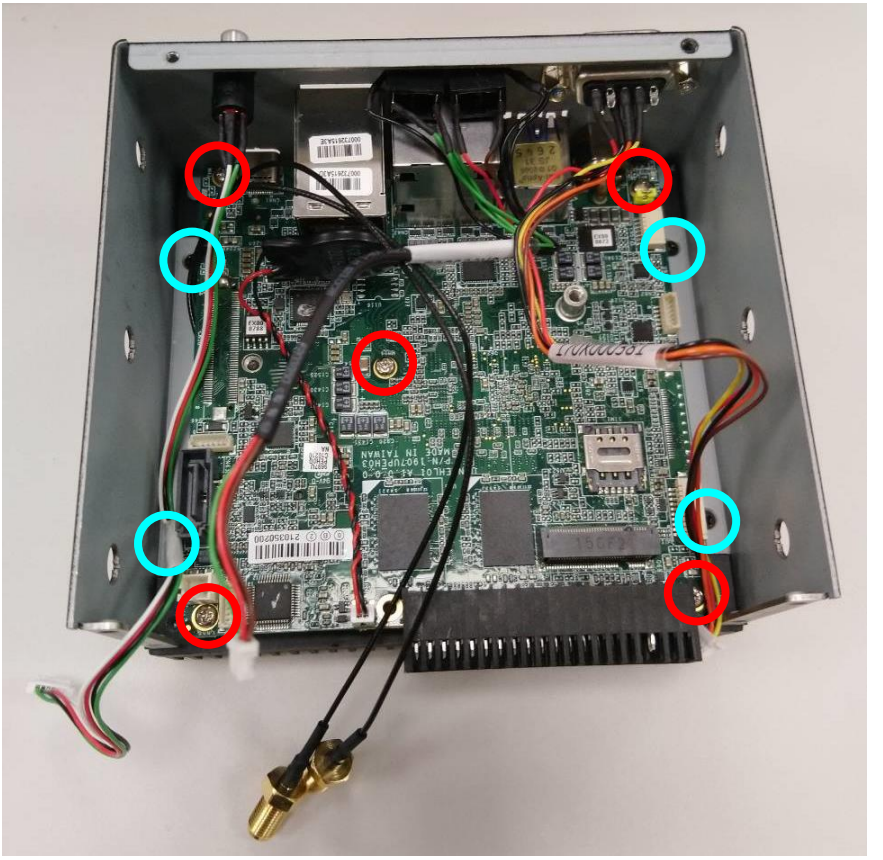
Step 7: Remove the M.2 screws, install the Wi-Fi module, and then put the screws back.

Install the antenna IPEX connector on the Wi-Fi Module and affix it with glue.

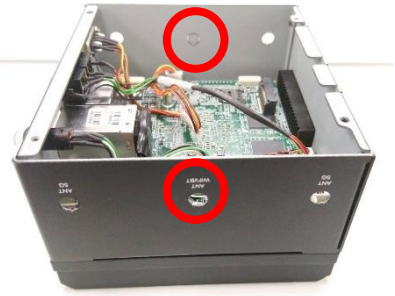


Note: Please use hot-melt adhesive with UL94 V-0 certification.

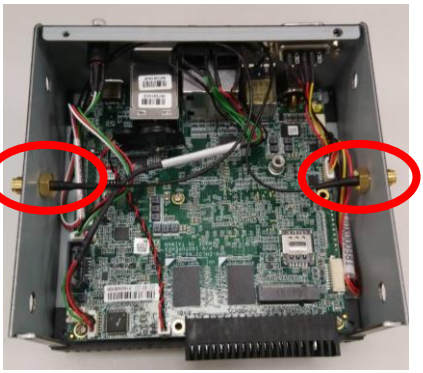
Step 8: Lock the 5 PCB screws (refer to step 6) and lock the 4 front panel screws (refer to step 5).



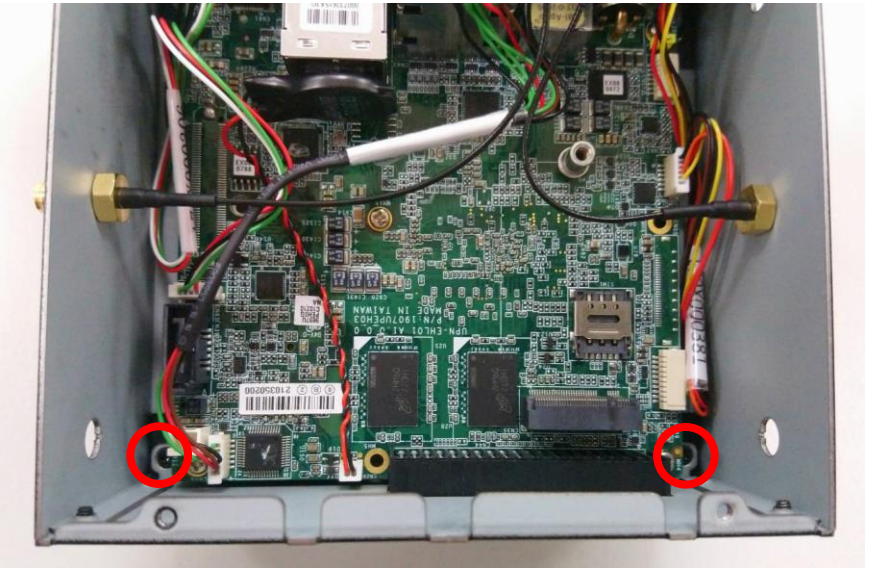
Step 9: Remove the metal cover on the ANT Wi-Fi/BT antenna hole (2 holes on the left and right sides of the system).



Step 10: Install the 2 antenna cables (recommended cable length > 20cm), tighten the external nut and washer, and reinsert the cables (refer to step 4).

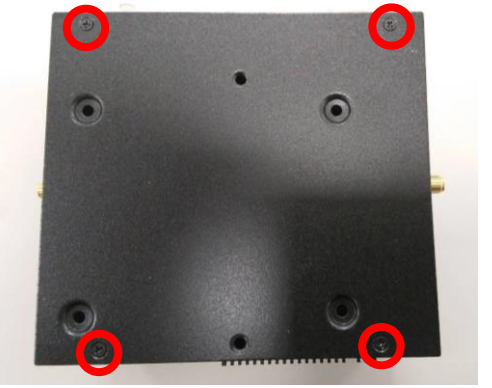


Step 11: Reattach the 6 back cover screws (refer to step 3).



Step 12: Reinstall the Power Jack nut and washer (refer to step 2).

Reattach the 4 back cover screws (refer to step 1).



Step 13: Install the external antennas.

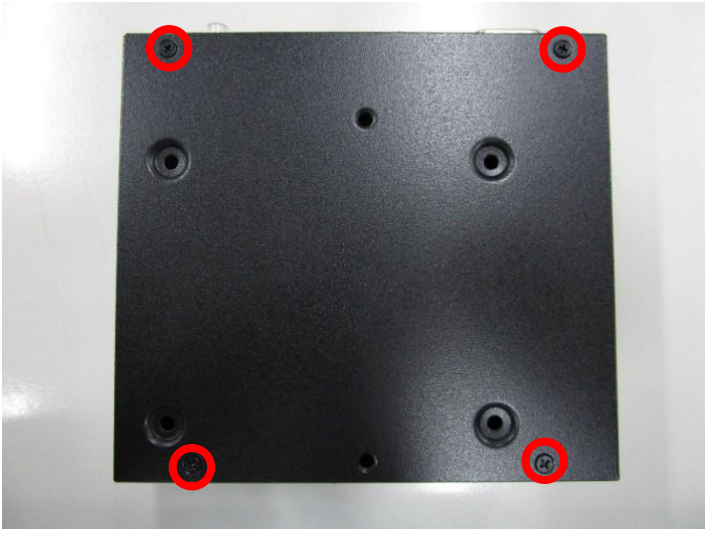
Warning:

- This SOP is referring to assembly steps, thermal solutions for different modules are not considered.
- Please check the block diagram in the product datasheet for module interface compatibility.

2.5.2 PCIe Module (M.2 2280 M-Key Slot) Installation

For this process you will need a Phillips head screwdriver.

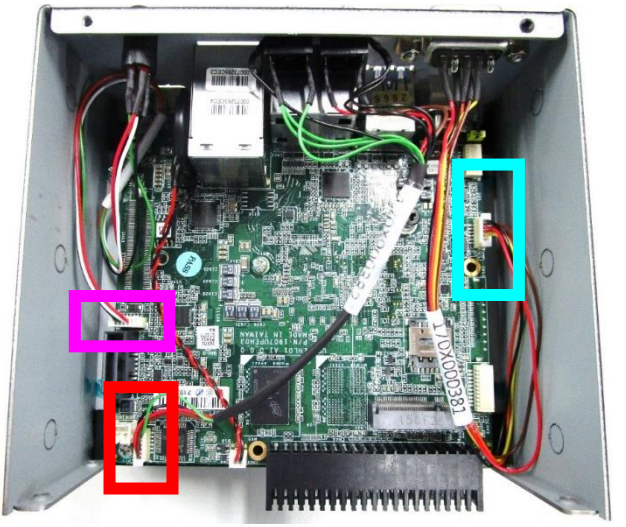
Step 1: Remove the four outermost screws on the bottom plate.



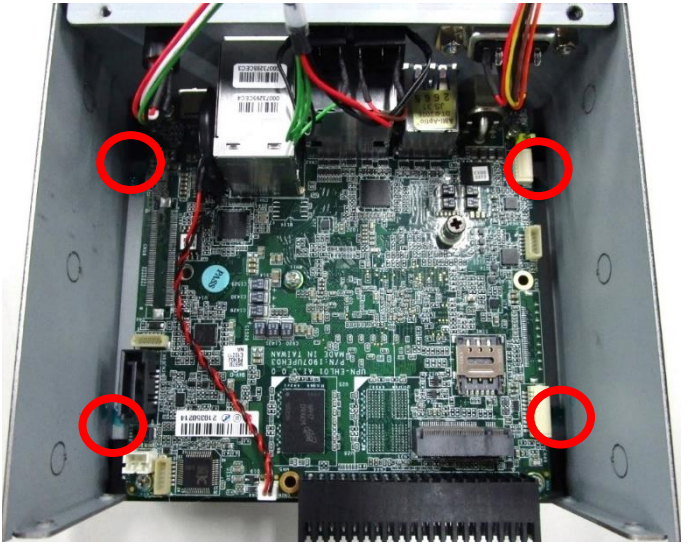
Step 2: Remove outer nut and washer on Power Jack.

Step 3: Remove the six rear cover screws.

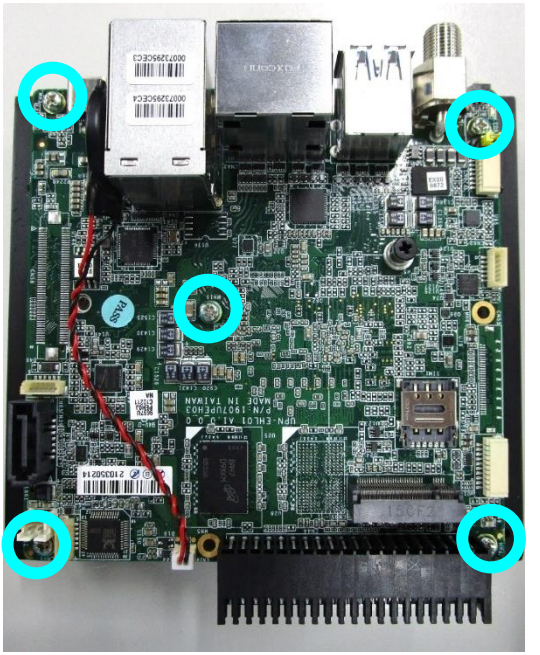
Step 4: Remove all cables from wafers.

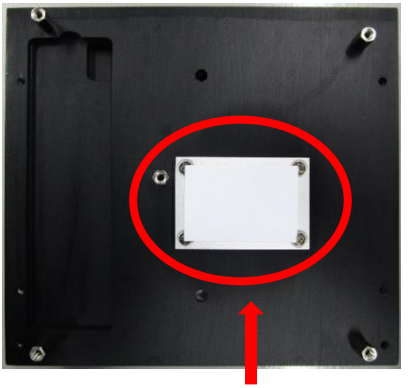


Step 5: Remove the four front panel screws.



Step 6: Remove the 5 PCB screws and pull up the board. If the PAD is damaged, it needs to be replaced with new one.





Ensure thermal pad is complete.

Step 7: Remove the M.2 screws, install the PCIe module, and then replace the screws.

Step 8: To reassemble the system, follow steps 1 to 6 in reverse order, like so:

Step 6 → Step 5 → Step 4 → Step 3 → Step 2 → Step 1

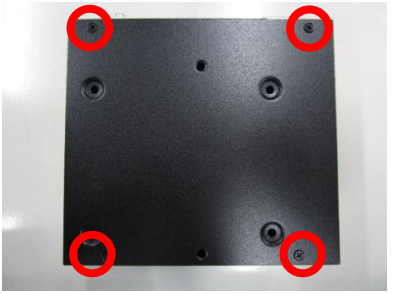
Warning:

- This SOP is referring to assembly steps, thermal solutions for different modules are not considered.
- Please check the block diagram in the product datasheet for module interface compatibility.

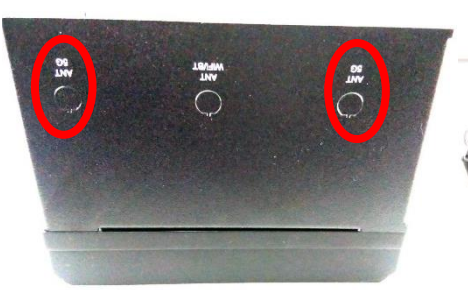
2.5.3 4G/5G Module (M.2 3052 B-Key Slot) Installation

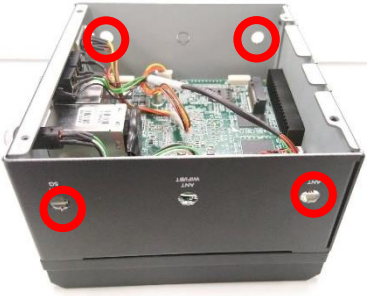
For this process you will need a Phillips head screwdriver.

Step 1: Remove the four outermost screws on the bottom plate.

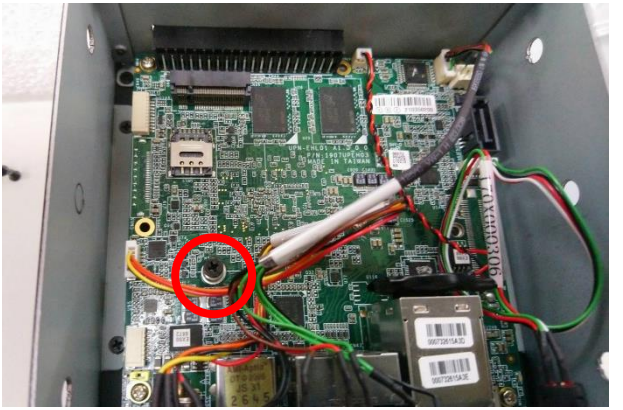


Step 2: Remove the metal cover on the ANT 5G antenna hole (4 holes in total on the left and right sides of the system).

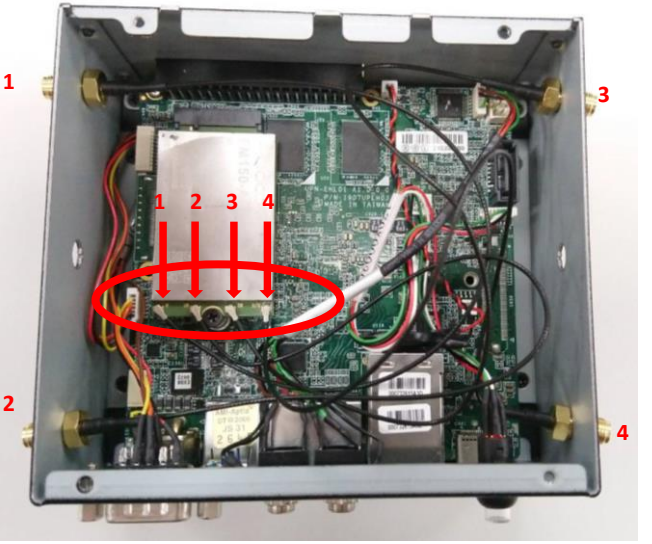




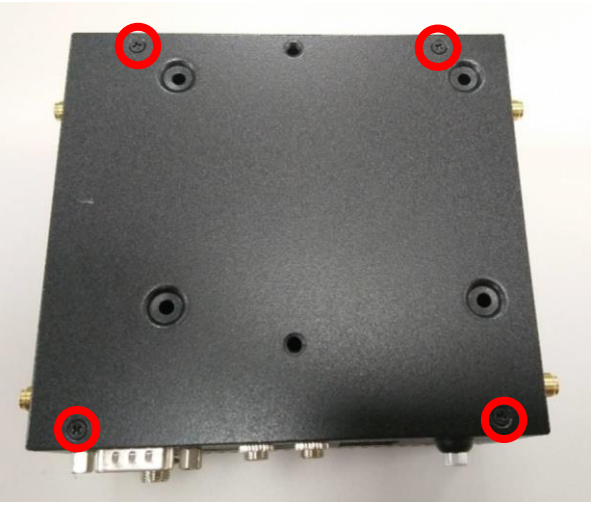
Step 3: Remove the default screw on M.2 copper pillar, then install the 5G Module on the M.2 3052 Slot and fasten the screws.



Step 4: Install the 4 antenna cables, and tighten the outer nut and washer for each, then install the antenna IPEX connector on the 5G card and affix it with glue.



Step 5: Reinstall the back cover and lock the 4 screws.



Step 6: Install the external antennas.

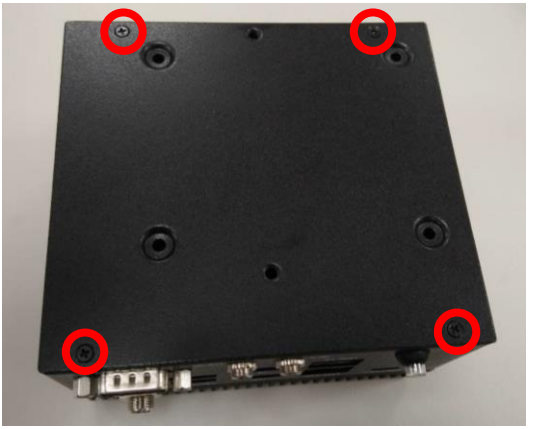
Warning:

- This SOP is referring to assembly steps, thermal solutions for different modules are not considered.
- Please check the block diagram in the product datasheet for module interface compatibility.

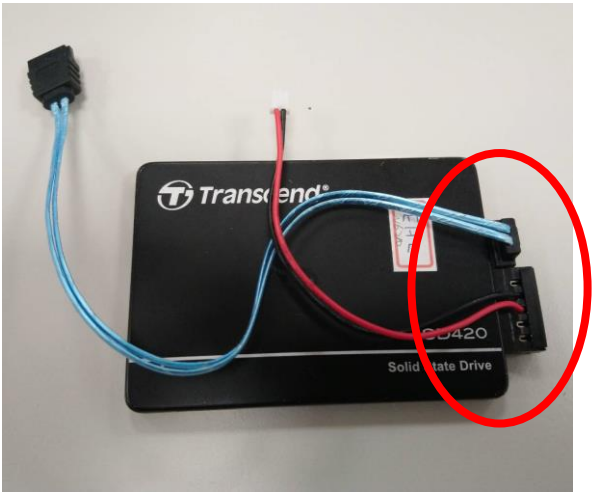
2.5.4 2.5" SATA Drive Installation (PN: UP-SATAKIT-A10-0001)

For this process you will need a Phillips head screwdriver.

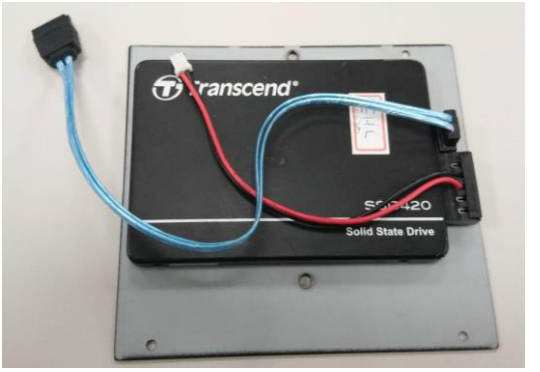
Step 1: Remove the screws on the bottom plate.

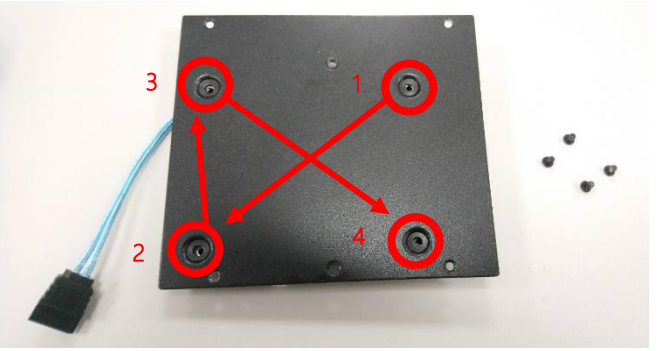


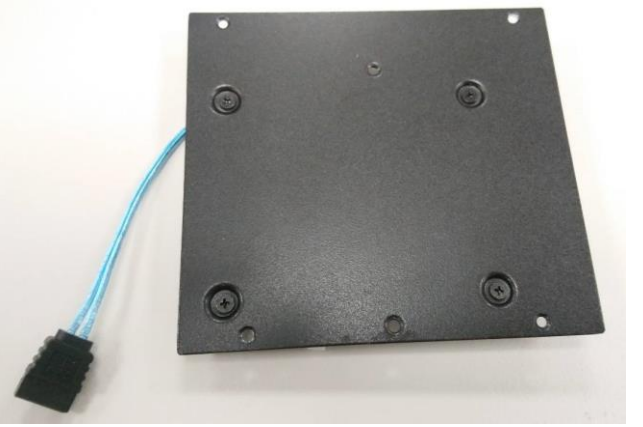
Step 2: Assemble the 2.5" HDD/SSD Cable as shown.



Step 3: Assemble the 2.5" HDD/SSD on the back cover, and lock the 2.5" HDD/SSD screws provided by 2.5" HDD/SSD vendor..

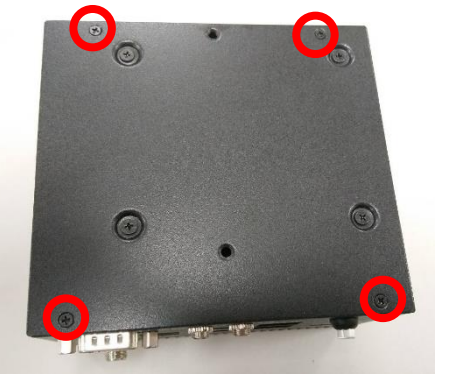






Step 4: Plug the Cable into the SATA and SATA power connector.

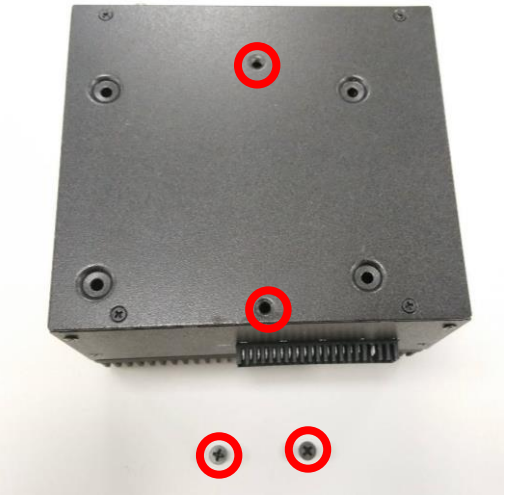
Step 5: Put the back cover back and affix with 4 screws.

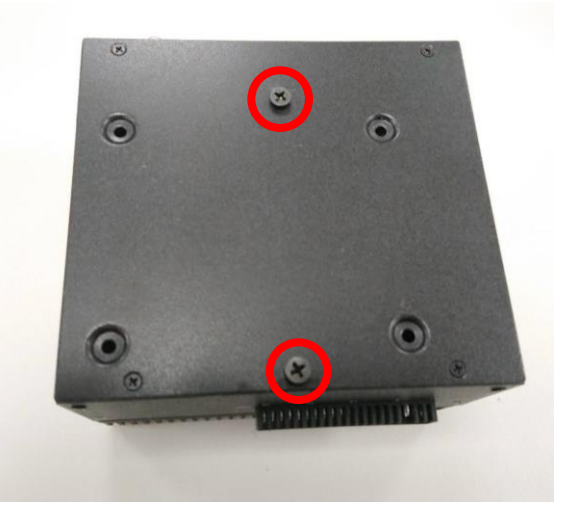


2.5.5 VESA Mount Installation (PN: UP-VESAKIT-A10-0001)

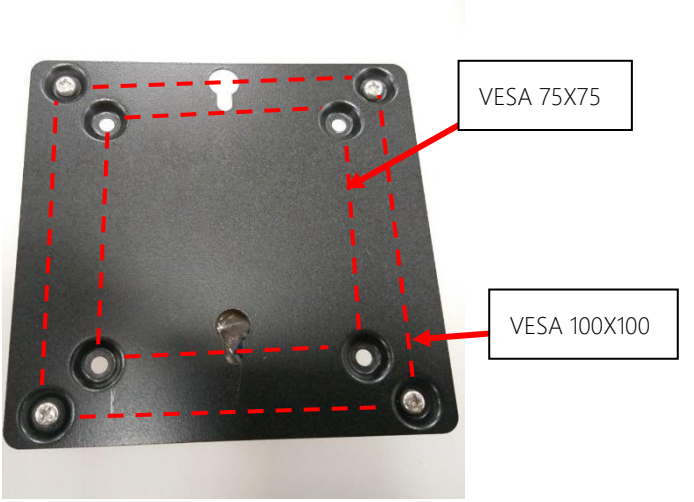
For this process you will need a Phillips head screwdriver.

Step 1: Lock the M4 step screw to the system.

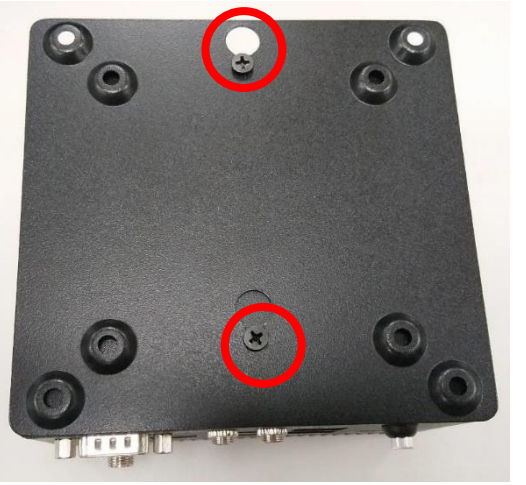




Step 2: Align the bracket with the VESA hole (75X75 / 100X100) and lock it with M4 screws.



Step 3: Align the screw attached to the system with the bracket keyhole and hang.



Chapter 3

Software Installation

3.1 Linux Setup

UPN-EDGE-EHL01 supports Linux operating systems (see Chapter 1 for specifications). For instructions on how to install a Linux OS onto your UPN-EDGE-EHL01, you can find several guides and tutorials in the wiki section of the UP Board website at https://up-board.org for both installing supported distributions as well as porting your own Linux build.

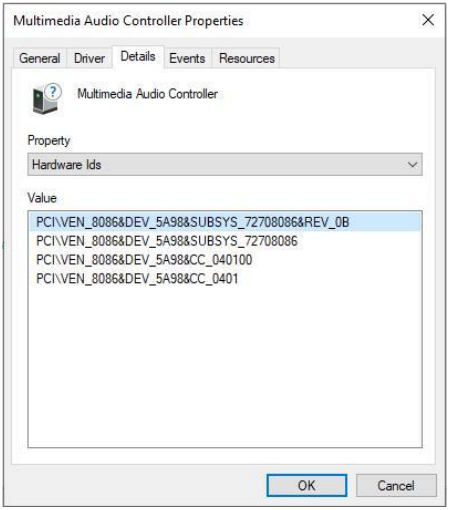
3.2 Windows Drivers Installation

Drivers for UPN-EDGE-EHL01 can be downloaded from the UP Board website by following the link https://up-board.org and navigating to the Downloads section, then clicking on the UP Squared 6000 to find all relevant drivers.

3.3 Unknown Device Troubleshooting

After installing Windows drivers on UP Squared 6000 (UPN-EHL01), you will see some unknown devices shown on device manager. Most unknown devices can be fixed by manually installing the driver from the Intel Serial IO 5.123.1.1023, except for Multimedia Audio Controller but here's how to fix it:

Multimedia Audio Controller

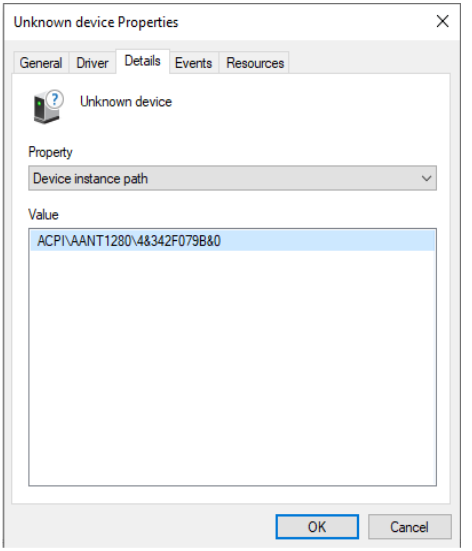


To fix the yellow exclamation mark "Multimedia Audio Controller", please go to BIOS setting and revise the default as below:

Setup > Chipset > PCH-IO Configuration > HD-Audio Configuration

Find **HD-Audio DSP** and change the setting to "Disabled"

VEN_AANT&DEV_1280: This is the ADC for Linux, there is no Windows driver. This can be ignored.



Appendix A

UP Framework SDK Installation

A.1 Introduction

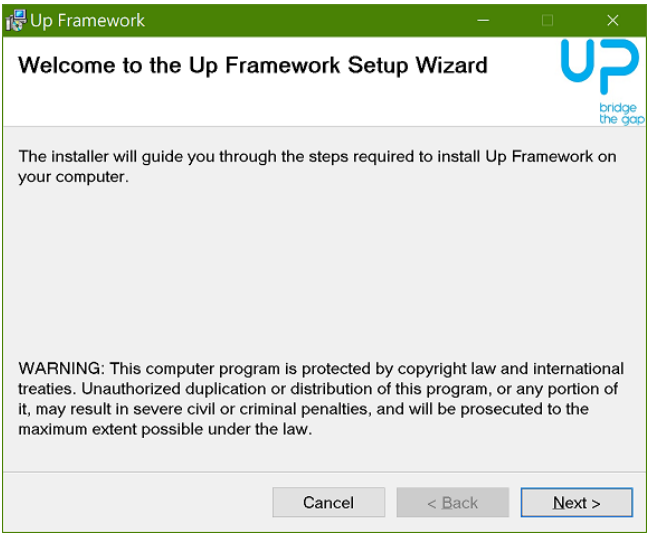
This section provides instructions for the installation of the UP Framework SDK. Instructions are provided for Windows 10 and Windows IoT Core. You can download the latest version of UP Framework SDK from the UP community:

https://downloads.up-community.org/download/up-sdk-for-windows-10-and-windows-iot/

A.2 Installation for Windows 10

Step 1

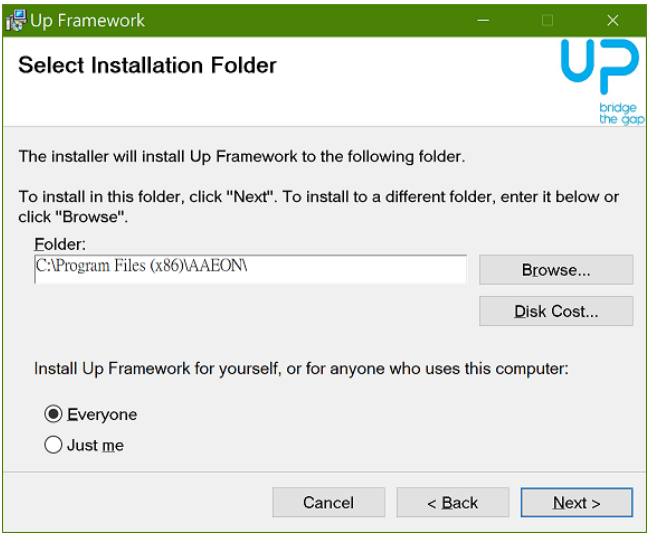
Locate the downloaded file UpFrameworkSetup.msi and run the installer. Press "Next" to begin the setup process.



Step 2

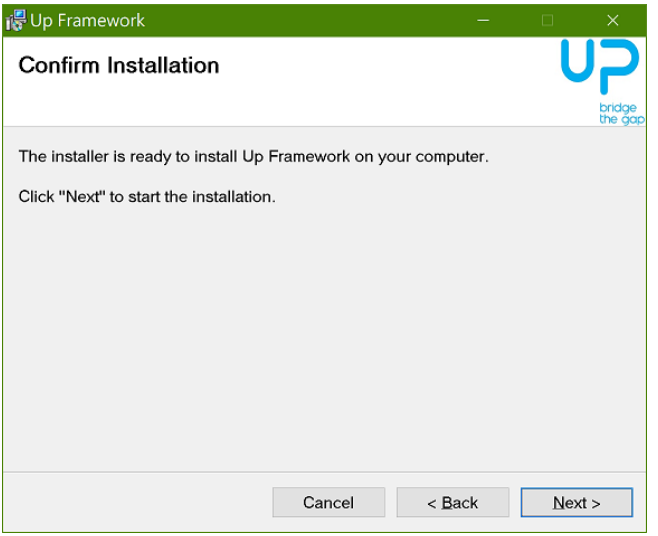
Select the installation folder. Default destination path is C:\Program Files(x86)\AAEON\

You may also choose to install the UP Framework SDK for all users or only the current user. Press "Next" to continue installation.



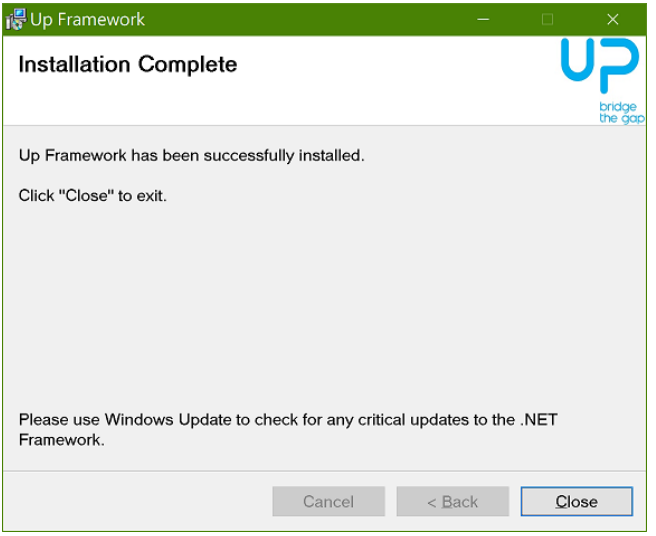
Step 3

Press "Next" to confirm the installation.



Step 4

Press "Close" to exit once setup is complete.



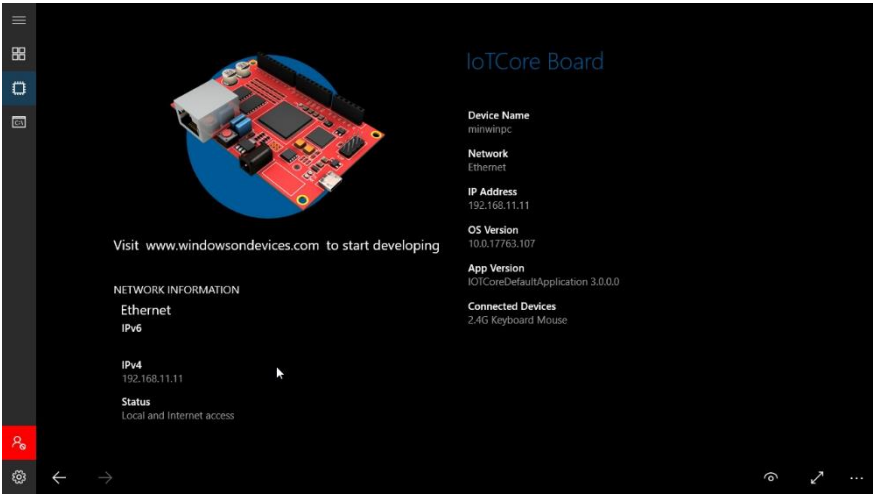
A.3 Installation for Windows IoT Core

Before you begin, make sure you have downloaded and installed the latest version of the Windows IoT Core image from the UP community.

Installation requires using a connected PC with the UP Framework SDK software downloaded and saved. **Note:** Make sure the UP IoT Core device is connected to the same network as the PC you are using to install the software from.

Step 1

Turn on your UP IoT Core device and note the IP address at the home screen.

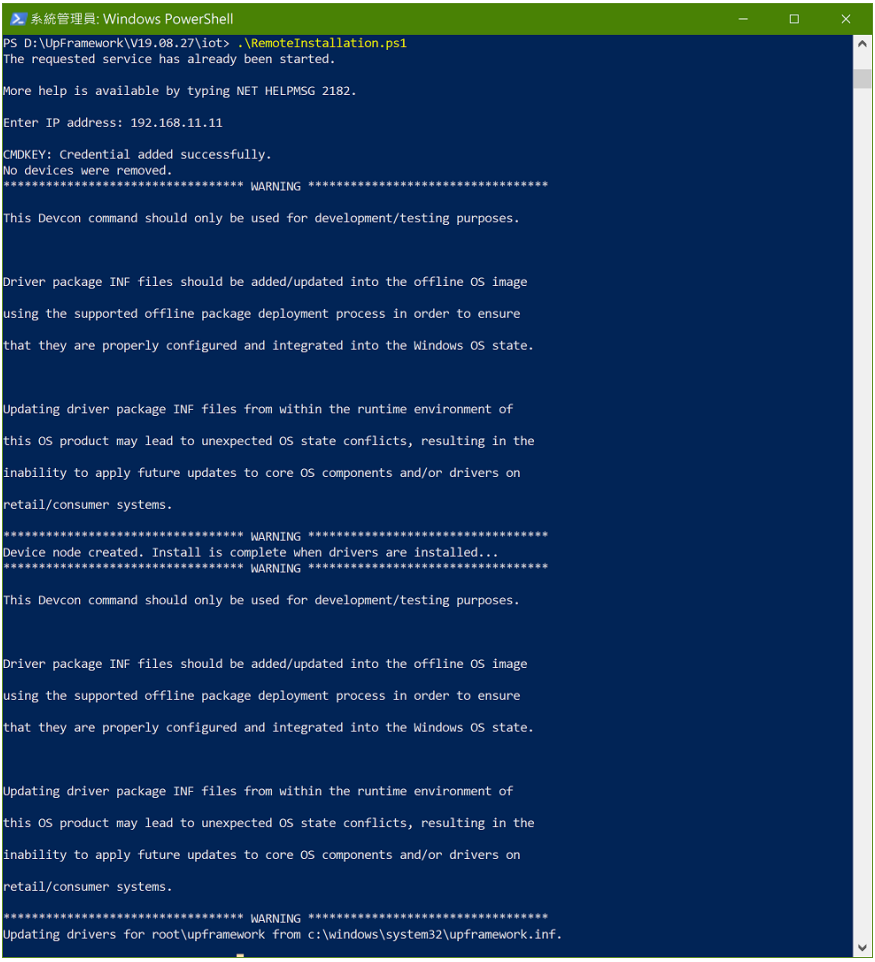


Step 2

Download the UP Framework SDK to your PC and unzip the files.

Open PowerShell as an Administrator. Run the command **RemoteInstallation.ps1** to install the UP Framework SDK.

Enter the IP address of the UP IoT Core device when prompted.



Appendix B

Cables and Connectors

B.1 Cables and Connectors

This table provides detailed information about the cables and connectors used by the UP Squared 6000 Edge (UPN-EDGE-EHL01). If you have any questions about the configuration of your board, please contact your AAEON sales representative.

Loca-tion	Connector	Function Description	Mating Cable PN/ CONN PN	Mating Cable Description
CN44	16522X0031	HAT 40	16522X0033	(TF)Phoenix Connector.DIP.180D.20*2P.Pitch =2.54mm.H=12.0mm.FEMALE. Black.DINKLE.0156-1B40-BK.PL UG IN
CN62	1655906033	RS232/ 422 1x6P Wafer	170X000381	(TF)COM Port.6P.Pitch=1.0mm.180mm.FL YINGWAY.FWAA-1454.RS232
CN66	1655906033	Audio	170X000382	(TF)Cable.6P.Pitch=1.0mm.150 mm.FLYINGWAY.FWAA-1473.A udio Jack Cable
CN65	1655906033	Front Panel	170X000306	(TF)Cable.to 6P 1.00mm housing.Power switch cable.SW w/green LED.20cm.FLYINGWAY.FWAA-1 348